

AMENDMENT UNDER 37 C.F.R. §1.111  
U.S. APPLN. NO. 10/554,055

**AMENDMENTS TO THE DRAWINGS**

Applicant submits herewith two (2) sheets of replacement formal drawing (sheets 2/3 and 3/3) in which the boxes of Figs. 2 and 3 have been labeled in accordance with the description found in Applicant's specification.

Attachment: Replacement Sheets 2/3 and 3/3

**REMARKS**

**STATEMENT OF SUBSTANCE OF INTERVIEW**

The substance of the telephone interview of January 4, 2007 is as stated in the Examiner's Interview Summary mailed January 10, 2007.

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Applicant requests the Examiner to reconsider and withdraw the objection to the drawings in view of the concurrently filed replacement drawing sheets 2/3 and 3/3 in which the boxes of Figs. 2 and 3 have been labeled in accordance with the description found in Applicant's specification.

Applicant requests the Examiner to reconsider and withdraw the objection to the disclosure in view of the above amendments to page 2.

Applicant requests the Examiner to reconsider and withdraw the objection to claims 1, 8, 13 and 20 in view of the above new claims 24-44 which have been drafted specifically to address and overcome the Examiner's stated grounds in support of this objection.

Applicant also requests the Examiner to reconsider and withdraw the objection to claims 14-16 under 37 C.F.R. §1.75(c) in view of the above new independent "device" claims 35-37.

Applicant respectfully traverses the rejection of claims 1-23 under 35 U.S.C. §103(a) as being unpatentable (obvious) over Miyashita '774 in view of Yoneda '680, insofar as this rejection may be applied to the new claims 24-44.

### **NEW CLAIMS 24-44**

The new independent claims now state that the respective method and device relate to the control of a production unit of a production installation for the production and/or packaging of cigarettes or other articles of smoking.

Also, specially added to method claim 24 and to device claim 35 is the limitation that "this limit value or, if appropriate, a corresponding limit value that is taken into account for the determination of a desired value for the master drive, is reduced in the event of access being made into the production installation when a protective arrangement of the production unit is opened". This limitation is disclosed on specification page 3, line 31 ff. to page 4, line 17.

The new dependent claims 27-34 and 38-44 generally correspond to the originally filed claims 4-11 and 15-21, respectively.

### **THE CLAIMED INVENTION**

The present invention relates to the task of increasing the operational safety of production units of production installations for cigarettes and other articles of smoking. In particular, it is intended to increase the operational safety of production units equipped with a primary (meter) drive and a drive dependent on the primary drive. Here the dependent drive has a servo actuator, that is to say, the dependent and the primary drive are mechanically uncoupled. According to a special aspect of the invention, operational safety is even further increased if an operator accesses the installation. When such access is made, a protective arrangement is opened which during normal operations covers rotating components that are potentially dangerous.

The solutions provided by the invention are in particular related to each other by this common "task".

Pursuant to new "method" **claim 24** and the corresponding new "**device**" **claim 35**, a limit value influences the desired value specified for the dependent drive. In an expedient embodiment of this concept, the desired value may not exceed this limit value, for example. The specified desired value can thus be limited to a safe value, i.e., corresponding to a value low enough to ensure operational safety. Further, any damage to the components can be prevented which may have resulted from inadmissibly high desired values. In addition, pursuant to claim 24, this limit value influencing the desired value specification is reduced in the event of access being made into the production installation – in particular when a protective arrangement is opened. As an alternative, in the event of access being made, a corresponding limit value can be reduced that is taken into account for a desired value specified for the primary drive.

The claimed invention ensures that the dependent drive of the production unit may be operated only below a determined maximum desired value, for example a maximum rotational speed, even during normal operations. In the event of access being made to the installation, this maximum rotational speed is reduced once again. An operator of the installation who is making such access will be confronted only with the corresponding lower rotational speed. The lower rotational speed reflects the situation that the protective arrangement of the installation is open, and that consequently potentially dangerous components are freely accessible.

The reduction in rotation speed can be implemented by reducing the maximum admissible rotational speed for the desired value specified for the dependent drive. But as an

alternative, the maximum admissible desired value specified for the primary drive can also be reduced, meaning, of course, that the desired value specified for the primary drive is automatically reduced. This is because the desired value specified for the dependent drive is usually dependent on the rotational speed of the primary drive.

Safe operation of the production unit is also achieved pursuant to method **claim 25** and the corresponding **device claim 36**. To this end, the dependent drive is assigned a transducer that measures actual values, for example the actual rotational speed. The actual rotational speed is compared with a limit value, and in the event of a deviation a stop signal is generated. The stop signal can effect a stop of the dependent drive, a stop of the primary (master) drive or also of the entire production unit. Operators of the installation are, therefore, not endangered by inadmissibly high rotational speeds of the dependent drives. Furthermore, this also effectively prevents damage from occurring to the dependent drive, which might be caused by the inadmissibly high rotational speeds.

In comparison to claim 24, in claims 25 and 26 it is not the **desired value specified** for the dependent drive that is limited to a safe value, but rather the **actual value**. As soon as the actual value deviates from a limit value representing the safe value, the stop signal is generated.

Finally, the embodiment of the invention pursuant to method **claim 26** and the corresponding device claim 37 provides for safe operation of the production unit. In comparison to claims 25 and 36, here the measured actual value of the dependent drive, for example the actual rotational speed, is not compared to a **limit value**, but rather to the desired value specified

for the dependent drive. The stop signal is generated in case there is a deviation between the desired value and the actual value.

All embodiments of the claimed invention have in common that errors relevant to safety in the operation of the dependent drives can be effectively prevented.

### **THE PRIOR ART**

Miyashita '774 relates to the synchronization of two special production units of a corresponding bottling plant in the beverage industry, namely a unit for filling bottles as well as a unit for capping the bottles. In order to synchronize the drives of the production units, rotary encoders or counters are used to count the clock pulse of the respective motors. A clock pulse value of the bottling station counter is used to calculate an anticipated clock pulse value in the production unit for capping the bottles. In case the anticipated value does not match a measured actual value, certain complex calculations are made in order to either reduce or increase the speed of the motor in the production unit for capping the bottles. The speeds of the motors thereby converge.

In **contrast** to Applicant's claimed invention, Miyashita fails to address in any manner a production installation for the production and/or packaging of cigarettes or other items of smoking. For this reason, a person skilled in the cigarette industry, where it is common knowledge that a great number of patents already exist, would never consult Miyashita.

But even if this person had consulted Miyashita '744, this reference would not have directed him to the solution represented by the claimed invention. For, in contrast to Applicant's

**claim 24**, Miyashita already fails to **account for a limit value** in the calculation of a desired value specified for a dependent drive. Within the framework of Miyashita it is therefore easily possible for the individual motors, in particular the dependent motor of the capping unit, to run uncontrolled at high rotational speeds. Miyashita presents no measures for preventing such high rotational speeds, which may trigger safety-related problems or result in damage to the installation. Within the framework of Miyashita the sole concern is to **synchronize** the motor speeds. Thus, in case the primary drive, i.e., the motor of the filling unit, should start to run erroneously at an inadmissibly high rotational speed, the dependent drive, i.e., the motor of the capping unit, would likewise attempt to attain this high rotational speed. No measures are disclosed in Miyashita for avoiding this scenario.

But above all, Miyashita fails to disclose a reduction of the limit value that is used to determine the desired value specification whenever access is made into the production installation, in particular in case a protective arrangement is opened. The task of effectively limiting the rotational speed of the drives when the installation is accessed and thereby ensuring the safety of human operators, is not addressed in any manner by Miyashita et al.

This argument can also be similarly applied to **Yoneda** '680. This reference also would not have been consulted by a person skilled in the art and working in the cigarette industry, since it relates to pin grinders.

Irrespective of that, **Yoneda** likewise relates merely to the synchronization of a master spindle and a dependent (slave) spindle, with the spindles being uncoupled mechanically. Measuring means are provided for determining faulty synchronization between the spindles.

Furthermore, it provides that the measured synchronization error is compensated by the appropriate measures. In this case the dependent spindle is fed a compensation signal for eliminating the faulty synchronization. A limit value is taken into account only in the calculation of this compensation value.

In **contrast** to claim 24, Yoneda completely fails to disclose that, in the event of access being made to the production installation, there occurs a reduction of a limit value for the desired value specified for the dependent drive or a reduction of a limit value for the desired value specified for the primary drive. Yoneda addresses exclusively the synchronization of the two spindles but **fails** to address in any manner a safety-related limitation, for example of the rotational speed of the dependent drive.

Claim 24 therefore demonstrates a non-obvious advance over this prior art.

But **independent method claims 25 and 26**, as well as the **corresponding independent device claims 36 and 37**, also demonstrate a non-obvious inventive step over the prior art. This is because both Miyashita and Yoneda fail to address in any manner the generation of stop signals if either the actual value of the dependent drive deviates from a limit value (claim 25) or the actual value deviates from a desired value (claim 26). This comes as no surprise since Miyashita and Yoneda do not relate in any manner to safety aspects during the operation of production units. Instead, the respective primary (master) drives and the dependent drives are only to be synchronized with each other. **No** mention is made concerning the safety aspects of observing limit values. Within the framework of these references, it is therefore **not necessary** to



generate stop signals for halting the operation of the dependent drives or the entire production installation.

It also cannot be argued that the generation of stop signals is obvious. Naturally it is known from the prior art that stop signals can be generated. However, the cited prior art fails to acknowledge in any manner the overall concept of claims 25 and 26, namely that limit values are to be taken into account in the process control of dependent drives and that stop signals are to be triggered if the measured values deviate from these limit values. The person skilled in the art is provided with no indications that might lead to this overall concept.

Neither Miyashita nor Yoneda, alone or in combination, provides any indication or hint of safety-related aspects that ensure a reliable stop of a production installation if predetermined limit values are not observed.

Thus, since the combined disclosures of Miyashita and Yoneda do not teach, or even suggest, **all the limitations** of the pending claims 24-44, especially the six (6) independent claims, Applicant respectfully submits that the subject matter of each of these claims would not have been *prima facie* obvious from these combined teachings.

Furthermore, even if a skilled person were to combine Miyashita's production unit with Yoneda's stored limit value, there would not be produced the subject matter of any of the pending claims 24-44.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw all objections and rejections, and to find the application to be in condition for allowance with all of claims 24-44; however, if for any reason the Examiner feels that the application is not now in

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condition for allowance, the Examiner is respectfully requested to **call the undersigned attorney** to discuss any unresolved issues and to expedite the disposition of the application.

Applicant files concurrently herewith an Excess Claim Fee Payment Letter (with fee) to cover the costs of the three (3) excess independent claims generated by this Amendment.

Applicant files concurrently herewith an Information Disclosure Statement, together with the European Patent Office Search Report, English translation of European Patent Office Search Report and copies of cited references.

Applicant also files concurrently herewith a Petition (with fee) for an Extension of Time of two months. Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this application, and any required fee for such extension is to be charged to Deposit Account No. 19-4880. The Commissioner is also authorized to charge any additional fees under 37 C.F.R. § 1.16 and/or § 1.17 necessary to keep this application pending in the Patent and Trademark Office or credit any overpayment to said Deposit Account No. 19-4880.

Respectfully submitted,

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